

November 20, 2001

Jeffrey L. Kaden  
Indiana University - Kokomo  
700 North Walnut Grove  
Bloomington, Indiana 47405-2206

Re: Exempt Operation Status,  
**067-7234-00059**

Dear Mr. Kaden:

The application from Indiana University - Kokomo, received on November 19, 1996, has been reviewed. Based on the information submitted and the provisions in 326 IAC 2-1.1-3(d)(4), it has been determined that the following operation of a university, located at 2300 South Washington Street, Kokomo, Indiana 46904, is classified as exempt from air pollution permit requirements:

- (a) One (1) boiler, constructed in 1965, fired by natural gas, maximum heat input capacity: 0.725 million British thermal units per hour.
- (b) Two (2) boilers, constructed in 1965, fired by natural gas, maximum heat input capacity: 6.275 million British thermal units per hour, each.
- (c) One (1) boiler, constructed in 1979, fired by natural gas, maximum heat input capacity: 1.674 million British thermal units per hour.
- (d) Eight (8) boilers, constructed in 1988, fired by natural gas, maximum heat input capacity: 0.3 million British thermal units per hour, each.
- (e) Two (2) boilers, constructed in 1994, fired by natural gas, maximum heat input capacity: 0.35 million British thermal units per hour, each.
- (f) Two (2) boilers, constructed in 1994, fired by natural gas, maximum heat input capacity: 1.8 million British thermal units per hour, each.
- (g) Two (2) gas chillers, constructed in 1994, fired by natural gas, maximum heat input capacity: 1.5 million British thermal units per hour, each.
- (h) One (1) space heater, fired by natural gas, maximum heat input capacity: 0.16 million British thermal units per hour.
- (i) One (1) No. 2 diesel oil standby generator, located in the library, maximum output rating: 300 kilowatts (402.2 horsepower).

The following conditions shall be applicable:

- 1. Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary alternative opacity limitations), opacity shall meet the following:
  - (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.
2. Any change or modification which causes the following description to not fully describe this source shall require approval from IDEM, OAQ prior to making the change:

This source consists only of educational and teaching activities. Pursuant to 326 IAC 2-2-1.1-3(d)(4), "educational and teaching activities" means activities conducted at public and nonpublic schools and postsecondary educational institutions for educational, vocational, agricultural, occupational, employment, or technical training purposes provided the activities do not include the production of an intermediate or final product for sale or exchange for commercial profit or distribution. Support activities necessary to the educational and teaching activities are considered to be part of the educational and teaching activities. Support activities do not include the provision of power to the educational and teaching activities from emission units that provide power to multiple projects or from emission units that would otherwise require permitting, such as boilers that provide power to a source or solid waste disposal units, such as incinerators.

3. (a) Pursuant to 326 IAC 6-2-3(d) (Particulate Emissions Limitations for Sources of Indirect Heating), the PM from the two (2) boilers rated at 6.275 million British thermal units per hour and the one (1) boiler rated at 0.725 million British thermal units per hour, all constructed in 1965, shall not exceed 0.8 pound of PM per million British thermal units.
- (b) Pursuant to 326 IAC 6-2-3(e) (Particulate Emission Limitations for Sources of Indirect Heating), the PM from the one (1) 1.674 million British thermal units per hour boiler, constructed in 1979, shall not exceed 0.6 pound of PM per million British thermal units.
- (c) Pursuant to 326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating), the PM from the eight (8) boilers, constructed in 1988, shall not exceed 0.52 pound PM per million British thermal units.
- (d) Pursuant to 326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating), the PM from the four (4) boilers, constructed in 1994, shall not exceed 0.49 pound PM per million British thermal units.

The limitations in (c) and (d) are calculated according to the following equation from 326 IAC 6-2-4:

$$Pt = 1.09/Q^{0.26}$$

where:

Pt = Pounds of particulate matter emitted per million British thermal units (lb/MMBtu) heat input

Q = Total source maximum operating capacity rating in million British thermal units per hour (MMBtu/hr) heat input. The maximum operating capacity rating is defined as the maximum capacity at which the facility is operated or the nameplate capacity, whichever is

specified in the facility's permit application, except when some lower capacity is contained in the facility's operation permit; in which case, the capacity specified in the operation permit shall be used.

This exemption is the first air approval issued to this source.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Sincerely,

Original signed by Paul Dubenetzky

Paul Dubenetzky, Chief  
Permits Branch  
Office of Air Quality

CAP/MES

cc: File - Howard County  
Howard County Health Department  
Air Compliance - Marc Goldman  
Permit Filing - Lisa Lawrence  
Air Programs Section- Michele Boner  
Compliance Branch - Karen Nowak

## **Indiana Department of Environmental Management Office of Air Quality**

### **Technical Support Document (TSD) for an Exempt Operation**

#### **Source Background and Description**

<b>Source Name:</b>	<b>Indiana University - Kokomo</b>
<b>Source Location:</b>	<b>2300 South Washington Street, Kokomo, Indiana 46904</b>
<b>County:</b>	<b>Howard</b>
<b>SIC Code:</b>	<b>8221</b>
<b>Operation Permit No.:</b>	<b>067-7234-00059</b>
<b>Permit Reviewer:</b>	<b>CarrieAnn Paukowits</b>

The Office of Air Quality (OAQ) has reviewed an application from Indiana University - Kokomo relating to the operation of a university.

#### **Emission Units and Pollution Control Equipment**

The source consists of the following permitted emission units and pollution control devices:

- (a) One (1) boiler, constructed in 1965, fired by natural gas, maximum heat input capacity: 0.725 million British thermal units per hour.
- (b) Two (2) boilers, constructed in 1965, fired by natural gas, maximum heat input capacity: 6.275 million British thermal units per hour, each.
- (c) One (1) boiler, constructed in 1979, fired by natural gas, maximum heat input capacity: 1.674 million British thermal units per hour.
- (d) Eight (8) boilers, constructed in 1988, fired by natural gas, maximum heat input capacity: 0.3 million British thermal units per hour, each.
- (e) Two (2) boilers, constructed in 1994, fired by natural gas, maximum heat input capacity: 0.35 million British thermal units per hour, each.
- (f) Two (2) boilers, constructed in 1994, fired by natural gas, maximum heat input capacity: 1.8 million British thermal units per hour, each.
- (g) Two (2) gas chillers, constructed in 1994, fired by natural gas, maximum heat input capacity: 1.5 million British thermal units per hour, each.
- (h) One (1) space heater, fired by natural gas, maximum heat input capacity: 0.16 million British thermal units per hour.

- (i) One (1) No. 2 diesel oil standby generator, located in the library, maximum output rating: 300 kilowatts (402.2 horsepower).

### **Existing Approvals**

There are no existing approvals for this source.

### **Enforcement Issue**

There are no enforcement actions pending.

### **Recommendation**

The staff recommends to the Commissioner that the operation be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

A complete application for the purposes of this review was received on November 19, 1996, with additional information received on March 25, 1997 and October 12, 2001.

This source consists only of educational and teaching activities. Pursuant to 326 IAC 2-2-1.1-3(d) (4), "educational and teaching activities" means activities conducted at public and nonpublic schools and postsecondary educational institutions for educational, vocational, agricultural, occupational, employment, or technical training purposes provided the activities do not include the production of an intermediate or final product for sale or exchange for commercial profit or distribution. Support activities necessary to the educational and teaching activities are considered to be part of the educational and teaching activities. Support activities do not include the provision of power to the educational and teaching activities from emission units that provide power to multiple projects or from emission units that would otherwise require permitting, such as boilers that provide power to a source or solid waste disposal units, such as incinerators.

The facilities at this source are used for heating and cooling buildings and as emergency power to the library and teaching facilities. The facilities do not provide power to operations that would otherwise require permitting. Therefore, pursuant to 326 IAC 2-2-1.1-3(d)(4), this source is exempt from permitting requirements.

### **Emission Calculations**

See pages 1 through 3 of 3 of Appendix A of this document for detailed emissions calculations.

### **Potential To Emit**

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, the department, or the appropriate local air pollution control agency."

Pollutant	Potential To Emit (tons/year)
PM	0.427
PM <sub>10</sub>	1.05
SO <sub>2</sub>	0.271
VOC	0.851
CO	9.80
NO <sub>x</sub>	14.0

HAPs	Potential To Emit (tons/year)
Benzene	0.0002
Dichlorobenzene	0.0001
Formaldehyde	0.0081
Hexane	0.196
Toluene	0.0004
Lead	0.0001
Cadmium	0.0001
Chromium	0.0002
Manganese	0.0004
Nickel	0.0002
TOTAL	0.205

The potential to emit (as defined in 326 IAC 2-5.1-2) of NO<sub>x</sub> is less than twenty-five (25) tons per year and greater than ten (10) tons per year. Therefore, the source can be subject to the provisions of 326 IAC 2-5.1-2. However, since the entire source is described by 326 IAC 2-2-1.1-3(d)(4), the source is exempt from permitting rules.

#### County Attainment Status

The source is located in Howard County.

Pollutant	Status
PM <sub>10</sub>	attainment
SO <sub>2</sub>	attainment
NO <sub>2</sub>	attainment
Ozone	attainment

Pollutant	Status
CO	attainment
Lead	attainment

- (a) Volatile organic compounds (VOC) and oxides of nitrogen (NO<sub>x</sub>) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Howard County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO<sub>x</sub> emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR Part 52.21.
- (b) Howard County has been classified as attainment or unclassifiable for all remaining criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

#### **Federal Rule Applicability**

- (a) There are no New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) applicable to this source.
- (b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14, 326 IAC 20, 40 CFR 61 and 40 CFR Part 63) applicable to this source.

#### **State Rule Applicability - Entire Source**

##### 326 IAC 2-6 (Emission Reporting)

This source is located in Howard County and the potential to emit CO, VOC, PM<sub>10</sub>, SO<sub>2</sub> and NO<sub>x</sub> is less than one hundred (100) tons per year. Therefore, 326 IAC 2-6 does not apply.

##### 326 IAC 5-1 (Opacity)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary alternative opacity limitations), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR Part 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

#### **State Rule Applicability - Individual Facilities**

##### 326 IAC 6-1-2 (Nonattainment Area Particulate Limitations)

This source is located in a county listed in 326 IAC 6-1-7, but is not specifically listed in 326 IAC 6-1-15. The potential to emit PM is less than one hundred (100) tons per year and the actual PM emissions are less than ten (10) tons per year, from the total of all facilities at this source. Therefore,

although the source is in a county listed in 326 IAC 6-1-7, the requirements of 326 IAC 6-1-2, Nonattainment area particulate limitations, are not applicable.

326 IAC 6-2-3 (Particulate Emissions Limitations for Sources of Indirect Heating)

The two (2) boilers rated at 6.275 million British thermal units per hour and the one (1) boiler rated at 0.725 million British thermal units per hour, all constructed in 1965, as well as the one (1) 1.674 million British thermal units per hour boiler, constructed in 1979, must comply with the requirements of 326 IAC 6-2-3, because they were all in operation prior to September 21, 1983. The allowable PM from the boilers is computed using the following equation:

$$Pt = (C \times a \times h) / (76.5 \times Q^{0.75} \times N^{0.25})$$

where:

Pt = Pounds of particulate matter emitted per million British thermal units (lb/MMBtu) heat input

Q = Total source maximum operating capacity rating in million British thermal units per hour (MMBtu/hr) heat input. The maximum operating capacity rating is defined as the maximum capacity at which the facility is operated or the nameplate capacity, whichever is specified in the facility's permit application, except when some lower capacity is contained in the facility's operation permit; in which case, the capacity specified in the operation permit shall be used.

C = Maximum ground level concentration with respect to distance from the point source at the "critical" wind speed for level terrain. This shall equal 50 micrograms per cubic meter for a period not to exceed a sixty (60) minute time period.

N = Number of stacks in fuel burning operation.

a = Plume rise factor which is used to make allowance for less than theoretical plume rise. The value 0.67 shall be used for Q less than or equal to 1,000 million British thermal units per hour heat input.

h = Stack height in feet. If a number of stacks of different heights exist, the average stack height will be computed using a weighted average of stack heights.

- (a) The total heat input capacity of the three (3) boilers in existence and in operation on or before June 8, 1972, is 13.275 million British thermal units per hour.

$$Pt = (50 \mu\text{g}/\text{m}^3 \times 0.67 \times 74.33\text{ft}) / (76.5 \times 13.275^{0.75} \times 1^{0.25}) = 4.68 \text{ lbs PM} / \text{MMBtu}$$

This number is greater than the allowable emissions stated in 326 IAC 6-2-3(d). Therefore the allowable emissions for each of the three (3) boilers constructed before June 8, 1972 shall be limited to 0.8 pound PM per million British thermal units. The potential PM emissions from each of the three (3) boilers limited to 0.8 pound PM per million British thermal units are as follows:

$$6.275 \text{ MMBtu/hr} \times (8.76 \text{ hr} \times \text{MMcf}) / (\text{MMBtu} \times \text{yr}) = 55.0 \text{ MMcf/yr}$$

$$55.0 \text{ MMcf/yr} \times 1.9 \text{ lbs/MMcf} / (6.275 \text{ MMBtu/hr} \times 8,760 \text{ hrs/yr}) = 0.002 \text{ lbs PM} / \text{MMBtu}$$

and



$$0.725 \text{ MMBtu/hr} \times (8.76 \text{ hr} \times \text{MMcf}) / (\text{MMBtu} \times \text{yr}) = 6.35 \text{ MMcf/yr}$$
$$6.35 \text{ MMcf/yr} \times 1.9 \text{ lbs/MMcf} / (0.725 \text{ MMBtu/hr} \times 8,760 \text{ hrs/yr}) = 0.002 \text{ lbs PM} / \text{MMBtu}$$

Therefore, the three (3) boilers constructed prior to June 8, 1972 will comply with the requirements of 326 IAC 6-2-3.

- (b) The total heat input capacity of the existing source when the one (1) boiler, constructed in 1979, was constructed was 13.275 million British thermal units per hour. The total source operating capacity for sources of indirect heating after the boiler was constructed was 14.949 million British thermal units per hour.

$$Pt = (50 \mu\text{g}/\text{m}^3 \times 0.67 \times 68\text{ft}) / (76.5 \times 14.949^{0.75} \times 1^{0.25}) = 3.92 \text{ lbs PM} / \text{MMBtu}$$

This number is greater than the allowable emissions stated in 326 IAC 6-2-3(e). Therefore the allowable emissions for each of the one (1) boiler constructed after June 8, 1972 and prior to September 21, 1983, shall be limited to 0.6 pound PM per million British thermal units. The potential PM emissions from the one (1) boiler limited to 0.6 pound PM per million British thermal units is as follows:

$$1.674 \text{ MMBtu/hr} \times (8.76 \text{ hr} \times \text{MMcf}) / (\text{MMBtu} \times \text{yr}) = 14.66 \text{ MMcf/yr}$$
$$14.66 \text{ MMcf/yr} \times 1.9 \text{ lbs/MMcf} / (1.674 \text{ MMBtu/hr} \times 8760 \text{ hrs/yr}) = 0.002 \text{ lbs PM} / \text{MMBtu}$$

Therefore, the one (1) boiler, constructed in 1979, will comply with the requirements of 326 IAC 6-2-3.

#### 326 IAC 6-2-4 (Particulate Emissions Limitations for Sources of Indirect Heating)

The eight (8) boilers, constructed in 1988, and the four (4) boilers, constructed in 1994, must comply with the requirements of 326 IAC 6-2-4, because they were all constructed after September 21, 1983. The allowable PM from the boilers is computed using the following equation:

$$Pt = 1.09/Q^{0.26}$$

where:

Pt = Pounds of particulate matter emitted per million British thermal units (lb/MMBtu) heat input

Q = Total source maximum operating capacity rating in million British thermal units per hour (MMBtu/hr) heat input. The maximum operating capacity rating is defined as the maximum capacity at which the facility is operated or the nameplate capacity, whichever is specified in the facility's permit application, except when some lower capacity is contained in the facility's operation permit; in which case, the capacity specified in the operation permit shall be used.

- (a) In 1988, the capacity of the indirect heating units at the existing source was 14.9 million British thermal units per hour. Eight (8) boilers, with a total heat input capacity 2.4 million British thermal units per hour, were constructed in 1988.

$$Pt = 1.09/(17.3)^{0.26} = 0.52 \text{ lb/MMBtu heat input}$$

The potential PM emissions from the eight (8) boilers limited to 0.52 pound PM per million British thermal units are as follows:

$$2.4 \text{ MMBtu/hr} \times (8.76 \text{ hr} \times \text{MMcf}) / (\text{MMBtu} \times \text{yr}) = 21.0 \text{ MMcf/yr}$$

$$21.0 \text{ MMcf/yr} \times 1.9 \text{ lbs/MMcf} / (2.4 \text{ MMBtu/hr} \times 8760 \text{ hrs/yr}) = 0.002 \text{ lbs PM / MMBtu}$$

Therefore, the eight (8) boilers constructed in 1988 will comply with the requirements of 326 IAC 6-2-4.

- (b) In 1994, the capacity of the indirect heating units at the existing source was 17.3 million British thermal units per hour. Four (4) boilers, with a total heat input capacity 4.3 million British thermal units per hour, were constructed in 1994.

$$Pt = 1.09/(21.6)^{0.26} = 0.49 \text{ lb/MMBtu heat input}$$

The potential PM emissions from the four (4) boilers limited to 0.49 pound PM per million British thermal units are as follows:

$$4.3 \text{ MMBtu/hr} \times (8.76 \text{ hr} \times \text{MMcf}) / (\text{MMBtu} \times \text{yr}) = 37.7 \text{ MMcf/yr}$$

$$37.7 \text{ MMcf/yr} \times 1.9 \text{ lbs/MMcf} / (4.3 \text{ MMBtu/hr} \times 8760 \text{ hrs/yr}) = 0.002 \text{ lbs PM / MMBtu}$$

Therefore, the four (4) boilers constructed in 1994 will comply with the requirements of 326 IAC 6-2-4.

#### 326 IAC 7-1.1 (Sulfur Dioxide Emission Limits)

This source is not subject to 326 IAC 7-1.1 (Sulfur Dioxide Emission Limits), because the potential to emit SO<sub>2</sub> from the facilities at this source is less than twenty-five (25) tons per year and ten (10) pounds per hour.

#### 326 IAC 9-1 (Carbon Monoxide Emission Limits)

The facilities at this source are not subject to 326 IAC 9-1 (Carbon Monoxide Emission Limits), because the source does not have a petroleum refining, ferrous metal smelting or refuse incineration facility.

### Conclusion

The operation of this university shall be subject to the conditions of the attached proposed Exemption 067-7234-00059.

**Appendix A: Emissions Calculations  
Natural Gas Combustion Only  
MM BTU/HR <100  
Natural Gas Boiler**

**Page 1 of 3 TSD App A**

**Company Name: Indiana University - Kokomo  
Address City IN Zip: 2300 South Washington Street, Kokomo, Indiana 46904  
Exemption: 067-7234  
Plt ID: 067-00059  
Reviewer: CarrieAnn Paukowits  
Date: November 19, 1996**

Heat Input Capacity  
MMBtu/hr

Potential Throughput  
MMCF/yr

24.809

217.33

Emission Factor in lb/MMCF	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
	1.9	7.6	0.6	100.0	5.5	84.0
Potential Emission in tons/yr	0.206	0.826	0.065	**see below	0.598	9.13

\*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

\*\*Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

### **Methodology**

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

See page 2 for HAPs emissions calculations.

**Appendix A: Emissions Calculations  
Natural Gas Combustion Only  
MM BTU/HR <100  
Natural Gas Boiler  
HAPs Emissions**

**Page 2 of 3 TSD App A**

**Company Name: Indiana University - Kokomo  
Address City IN Zip: 2300 South Washington Street, Kokomo, Indiana 46904  
Exemption: 067-7234  
Plt ID: 067-00059  
Reviewer: CarrieAnn Paukowits  
Date: November 19, 1996**

HAPs - Organics

Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr	2.28E-04	1.30E-04	8.15E-03	1.96E-01	3.69E-04

HAPs - Metals

Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03	Total HAPs
Potential Emission in tons/yr	5.43E-05	1.20E-04	1.52E-04	4.13E-05	2.28E-04	0.205

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.  
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

**Appendix A: Emission Calculations**  
**Internal Combustion Engines - Diesel Fuel**  
**Turbine (>250 and <600 HP)**  
**Reciprocating**

Page 3 of 3 TSD App A

**Company Name:** Indiana University - Kokomo  
**Address City IN Zip:** 2300 South Washington Street, Kokomo, Indiana 46904  
**Exemption:** 067-7234  
**Plt ID:** 067-00059  
**Reviewer:** CarrieAnn Paukowits  
**Date:** November 19, 1996

**Emissions calculated based on output rating (hp)**

Mechanical Output  
Horsepower (hp)

Potential Throughput  
hp-hr/yr based on 500 hour year

402.2

201100

Emission Factor in lb/hp-hr	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
	0.0022	0.0022	0.00205	0.0310	0.0025	0.00668
Potential Emission in tons/yr	0.221	0.221	0.206	3.12	0.253	0.672

**Methodology**

Potential Throughput (hp-hr/yr) = hp \* 8760 hr/yr

Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source supplies a source-specific brake-specific fuel consumption (AP-42, Footnote a, Table 3.3-1)

Emission Factors are from AP42 (Supplement B 10/96), Table 3.3-2

Emission (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] \* 8760 hr/yr / (2,000 lb/ton )

Emission (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton )

\*PM emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensable.

Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).